DOCUMENT RESUME

ED 148 607 SE 023 487

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TITLE Recent Articles, Activities, and Other Documents in the Marine Education Field.
PUB DATE Oct 77
NOTE 11p.

EDRS PRICE MF-$0.83 HC-$1.67 Plus Postage.
DESCRIPTORS *Annotated Bibliographies; Ecology; Elementary School Science; Elementary Secondary Education; Environmental Education; Laboratory Procedures; *Marine Biology; *Oceanology; *Science Activities; Science Education; *Secondary School Science

ABSTRACT

This annotated bibliography of marine education contains 35 documents published in 1976-1977 and an unpublished masters thesis (1969). The majority of the works are laboratory projects in marine science for students at the elementary and secondary school level. Other entries include marine science units for science teachers, marine education grant proposals, and other bibliographies. (BB)

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RECENT ARTICLES, ACTIVITIES, AND OTHER DOCUMENTS IN THE MARINE EDUCATION FIELD

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October 1977

SE 023 487

ABSTRACT

The bibliography includes 36 annotated entries in the marine education field. All of the entries are less than ten years old, and the majority were written in the past two years. The documents include student centered discovery activities, other bibliographies, articles concerning the National Marine Education Association, and marine education grant proposals.

INTRODUCTION

With each passing day, the evidence at hand tends to suggest more strongly that the marine education movement is gathering momentum. Increasingly, educators from every discipline seem to be adding their support. They, as well as the public at large, realize that the key to man's survival may lie in the safe and sane of the world of water. No longer can the world of water be blindly exploited. However, if man is to shift from blind exploition to safe and sane use, he must be aware.

Educating for environmental awareness of the world of water is an involved task. It does not require that everyone be a marine scientist, ecologist, or a limnologist. It does; however, mean that people must be educated to the point where they truly understand how they interact with the world of water. Education of this type is at best difficult to provide. But it can be facilitated by the sharing of information, and also by educators knowing what and how others are teaching.

Sharing information and becoming aware of what and how others are teaching usually requires large blocks of library research time. The magnitude of such time requirements is greatly reduced by the use of bibliographies, especially those which are annotated. The citations in this listing all have brief annotations.

The reader will note that the bibliography contains two different types of ERIC documents. There are those documents with ED numbers and there are those documents with SE numbers. Documents which have ED numbers assigned to them are available on microfiche at most libraries which subscribe to the ERIC system. In addition, personal microfiche or hard copies may be obtained by contacting:

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Documents which have been assigned an SE number are available in hard copy from:

ERIC Information Analysis Center for Science, Mathematics, and Environmental Education
The Ohio State University
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Columbus, Ohio 43212

BIBLIOGRAPHY

1. Schlenker, R. M. Methods used in studying intertidal stratification on piers and jetties of the coast of new england. Unpublished Masters Thesis, University of Maine at Gorham, 1969.

This document contains information which is essentially descriptive. Many of the methods could be used in high school field oriented labs. Copies of the document are available upon request from the author.

2. Schlenker, R. M., and Butzow, J. W. Marine science teacher education project. ERIC Information Analysis Center for Science, Mathematics, and Environmental Education, The Ohio State University, Columbus, Ohio, SE 021 345, September 1976.

This was a grant proposal submitted to the University of Maine Office of Sea Grant in the spring of 1976.

3. Schlenker, R. M. Marine chemistry: salinity for elementary school students. ERIC Information Analysis Center for Science, Mathematics, and Environmental Education, The Ohio State University, Columbus, Ohio, SE 021 349, September 1976.

   In this activity, students study and investigate salinity by evaporation of clear unknown solutions.

4. Schlenker, R. M. Physical oceanography: investigations in sea water density. ERIC Information Analysis Center for Science, Mathematics, and Environmental Education, The Ohio State University, Columbus, Ohio, SE 021 262, August 1976.

   In this activity, students study sea water density by investigating the buoyancy of pine and cak blocks in fresh and saline water.

5. Schlenker, R. M. Properties of sea water: a study by comparison - boiling point elevation. ERIC Information Analysis Center for Science, Mathematics, and Envoronmental Education, The Ohio State University, Columbus, Ohio, SE 021 263, August 1976.

   Students are led to discover a difference between fresh and saline water by comparing boiling points between the two liquids.

6. Schlenker, R. M. Physical oceanography by comparison: freezing point depression. ERIC Information Analysis Center for Science, Mathematics, and Environmental Education, The Ohio State University, Columbus, Ohioc SE 021 266, August 1966.

   In this activity, students study fresh and saline water by comparing their freezing points.

7. Schlenker, R. M. Investigations in marine chemistry: exploring salinity as a group activity. ERIC Information Analysis Center for Science, Mathematics and Enviromental Education, The Ohio State University, Columbus, Ohio, SE 021 347, September 1976.

   In this activity, students are led to discover that in every liter of sea water there are 1000 grams of sea water. This is accomplished by having several different groups of students evaporate part of a one liter sample. The residue is then combined and weighed.

8. Schlenker, R. M. Salinity measurements using a hydrometer. ERIC Information Analysis Center for Science, Mathematics, and Environmental Education, The Ohio State University, Columbus, Ohio, SE 021 348, September 1976.

   An hydrometer is used in this activity to demonstrate a difference between saline and fresh water.

9. Schlenker, R. M. Relocation of a point in the intertidal zone: an exercise in mapping. ERIC Information Analysis Center for Science, Mathematics, and Environmental Education, The Ohio State University, Columbus, Ohio, SE 021 346, September 1976.

   This activity gives students experience with two different methods of relocating points within the intertidal zone.

10. Schlenker, R. M. Measuring salinity with a test tube, pencil, and cork. ERIC Information Analysis Center for Science, Mathematics, and Environmental Education, The Ohio State University, Columbus, Ohio, SE 021 344, September 1976.

    In this activity, students are led to discover a difference between saline and fresh water by evaluating the buoyancy of a pencil as it floats in two unknown solutions.

11. Schlenker, R. M. Marine science: a discovery exercise with single celled and simple organisms. ERIC Information Analysis Center for Science, Mathematics, and Environmental Education, The Ohio State University, Columbus, Ohio, SE 021 350, September 1976.

    Students participating in this activity look at water samples at a shore site prior to being introduced to these types of organisms in a lecture situation.

12. Schlenker, R. M. Help! marine science education association needed. American Biology Teacher, 38(8): 494; Nov 1976.

    In this article, the author appeals to the academic community to form a marine science education association.

13. Schlenker, R. M. An introduction to the marine environment: a mini-unit. U. S. Office of Education, ERIC ED 128 163, Jan 1977.

This is a unit designed to introduce preservice science teachers to the marine environment. It includes an introduction to oil pollution.

14. Schlenker, R. M. Investigations in marine chemistry: tide pool ecology. U. S. Office of Education, ERIC ED 128 205, Jan 1977.

In this activity, students study the effects of time on tide pools at various heights in the intertidal zone.

15. Schlenker, R. M. Investigations in marine chemistry: salinity 1. U. S. Office of Education, ERIC ED 128 206, Jan 1977.

Students who take part in this activity build their own salinometers. Information is included which describes a method of mixing salt solutions.

16. Schlenker, R. M. Investigations in marine chemistry: salinity 11. U. S. Office of Education, ERIC ED 128 207, Jan 1977.

In this activity, the student puts to work the salinometer built as a result of the activity listed in number 15.

17. Schlenker, R. M. Marine science education materials and their usefulness. U. S. Office of Education, ERIC ED 128 208, Jan 1977.

This document lists over 200 marine education documents. Their sourses are included as well as in many cases, a grade level of applicability. Many of the documents included herein are available free of charge.

18. Schlenker, R. M. Precollege marine science education 1973 through 1976. U. S. Office of Education, ERIC ED 129 581, Feb 1977.

This is a state of the art paper for the inclusive years. It covers activity throughout the U. S.

19. Schlenker, R. M. The commercial fisheries of maine: a review and critique. ERIC Information Analysis Center for Science, Mathematics, and Environmental Education, The Ohio State University, Columbus, Ohio SE 022 102, March 1977.

This is a critique of the publication, Commercial Fisheries of Maine.

20. Schlenker, R. M. The national marine education association, its genesis and future. ERIC Information Analysis Center for Science, Mathematics, and Environmental Education, The Ohio State University, Columbus, Ohio, SE 022 160, March 1977.

This is a paper which was delivered at the State of New Hampshire Marine Education Conference, March 22, 1977 at the University of New Hampshire at Durham.

21. Schlenker, R. M. Investigation of tidal cycles: an activity for students who live away from the sea shore. ERIC Information Analysis Center for Science, Mathematics, and Environmental Education, The Ohio State University, Columbus, Ohio, SE 022 251, April 1977.

This activity makes use of newspapers and other documents in the study of tidal cycles. The activity can be conducted at almost no cost for a large number of students.

22. Schlenker, R. M. A report to the university of maine, office of sea grant concerning the 6th national marine education conference, pacific grove, california, october 26-29, 1976. U. S. Office of Education, ERIC ED 133 201, May 1977.

The report discusses the conference in general and includes the names of the some of the nationally known participants.

23. Schlenker, R. M. How long do marine organisms live? investigations in the marine environment for children. U. S. Office of Education, ERIC ED 134 400, June 1977.

Students who participate in this exercise study the life length of the soft shelled clam.

24. Schlenker, R. M. Strand line observations for high school students: an exercise in the marine environment. U. S. Office of Education, ERIC ED 134 401, June 1977.

This activity takes students into a study of how to evaluate the contents of the strand line.

25. Schlenker, R. M. An introduction to marine education, a course for preservice science teachers. U. S. Office of Education, ERIC ED 135 644, July 1977.

This is a secondary science methods course in which all the methodology revolves around the marine world.

26. Schlenker, R. M., and Crowell, L. D. Marine science education in maine. ERIC Information Analysis Center for Science, Mathematics, and Environmental Education, The Ohio State University, Columbus, Ohio, SE 022 484, May 1977.

This article presents the results of a survey of the background of preservice science teachers at the University of Maine at Orono in the marine science area.

27. Schlenker, R. M. and Butzow, J. W. Northern new england marine education project. ERIC Information Analysis Center for Science, Mathematics, and Environmental Education, The Ohio State University, Columbus, Ohio, SE 022 363, April 1977.

This is a project which revises the Marine Education Project COAST materials for use in the northern New England area.

28. Schlenker, R. M. and Butzow, J. W. The university of maine at orono, precollege marine science teacher education project. ERIC Information Analysis Center for Science, Mathematics, and Environmental Education, The Ohio State University, Columbus, Ohio, SE 022 364, April 1977.

This was a project which sought to train inservice teachers in the marine science areas.

29. Schlenker, R. M. 1973 Seminar in maritime and regional studies: a review and overview. ERIC Information Analysis Center for Science, Mathematics, and Environmental Education, The Ohio State University, Columbus, Ohio, SE 022 475, May 1977.

This is a critique of the seminar report.

30. Schlenker, R. M. Marine science education in maine 1976. ERIC Information Analysis Center for Science, Mathematics, and Environmental Education, The Ohio State University, Columbus, Ohio, SE 022 271, April 1977. A paper presented at the 1976 Maine State Science Teachers' Convention, Waterville High School, Waterville, Maine, October 1, 1976.

This paper discusses the state of the art in marine science education in the State of Maine in 1976. The document lists the names and addresses of several individuals in the State of Maine who were teaching marine sciences in their classrooms in 1976.

31. Schlenker, R. M. Marine weather: an inquiry activity for young marine science educators. ERIC Information Analysis Center for Science, Mathematics, and Environmental Education, The Ohio State University, Columbus, Ohio, SE 022 275, April 1977.

This activity allows tne student to study marine weather in the classroom.

32. Schlenker, R. M. A partial bibliography for pre college marine science educators. U. S. Office of Education, ERIC ED 137 130, August 1977.

This is a partially annotated bibliography of marine education documents.

33. Schlenker, L. L., and Schlenker, R. M. The readability of selected marine science texts by grade level. U. S. Office of Education, ERIC ED 137 108, August 1977.

The authors evaluate the readability of several marine science texts.

34. Schlenker, R. M. At reserve group southwest harbor, marine training and education is everyone's business. The Coast Guard Reservist, 24(8): 8-9; May-Jun 1977.

This article discusses a training program for inactive duty Coast Guard Reservists.

35. Schlenker, R. M. The basics of inshore navigation for high school students. ERIC Information Analysis Center for Science, Mathematics and Environmental Education, The Ohio State University, Columbus, Ohio, SE 022 081, March 1977.

In this activity, students study piloting using charts, parallel rulers and the discovery approach to learning.

36. Schlenker, R. M. State and Regional Marine education associations. ERIC Information Analysis Center for Science, Education, and Environmental Education, The Ohio State University, Columbus, Ohio, SE 022 726, August 1977.

This document lists several marine education associations in the U. S.